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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM D. HOLLAND

Appeal 2009-004170
Application 10/699,011
Technology Center 2600

Decided: February 22, 2010

Before MAHSHID D. SAADAT, CARLA M. KRIVAK, and
BRADLEY W. BAUMEISTER, *Administrative Patent Judges*.

KRIVAK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeal under 35 U.S.C. § 134(a) from a final rejection of claims 1-7, 13-23, and 27-38. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

STATEMENT OF THE CASE

Appellant's claimed invention is a hard imaging device and method for accessing image data corresponding to images to be formed and their correction data. The correction data corresponds to scanning errors of an optical scanning system of the hard imaging device (Spec. ¶ [0008]). Processing circuitry modifies the image data according to the correction data to reduce image errors introduced during optical scanning of the image data (Spec. ¶ [0008]). Specifically, processing circuitry may pre-warp image data to cancel geometric warping introduced by a scan lens, providing hard images of acceptable accuracy representing the original image data (Spec. ¶ [0033]).

Independent claim 1, reproduced below, is representative of the subject matter on appeal.

> 1. A hard imaging method comprising:
>
> accessing image data corresponding to a hard image to be formed;
>
> generating light responsive to the image data;
>
> scanning the light to form a latent image corresponding to the hard image to be formed;
>
> accessing correction data corresponding to scanning errors of a scan lens intermediate a rotating reflection device and a photoconductor; and
>
> modifying the image data using the correction data before the generating, the modifying comprising modifying to reduce an introduction of image errors resulting from the scanning using the scan lens.

REFERENCES

Ishigami	US 5,933,184	Aug. 3, 1999
Chase	US 6,611,348 B1	Aug. 26, 2003

Theodoracatos, *A 3-D Vision System Model for Automatic Object Surface Sensing*, Int'l Journal of Computer Vision, 11:1, 1993, pp. 75-99.

The Examiner rejected claims 32 and 34-38 under 35 U.S.C. § 112, first paragraph.

The Examiner rejected claims 1, 3-5, 7, 13, 16, 18, 19, 23, 27, 28, 31-33, and 37 under 35 U.S.C. § 102(b) based upon the teachings of Ishigami.

The Examiner rejected claims 2, 6, 14, 15, 21, 22, 30, 34-36, and 38 under 35 U.S.C. § 103(a) based upon the teachings of Ishigami.[1]

The Examiner rejected claims 17, 20, and 29 under 35 U.S.C. § 103(a) based upon the teachings of Ishigami and Theodoracatos.

Appellant contends there is support in the Specification to satisfy the written description requirement of 35 U.S.C. § 112, first paragraph (App. Br. 22-25; Reply Br. 18-23) for claims 32 and 34-38. Appellant further contends Ishigami discloses variation of clock pulses according to correction data, but does not modify image data using correction data (App. Br. 4-6; Reply Br. 1-4). Appellant also contends Ishigami teaches modifying clock signals to vary clocking of image data rather than modifying the image data at a constant rate as claimed (App. Br. 18-19; Reply Br. 15). Finally, Appellant contends Ishigami fails to teach or suggest modifying image data

[1] The Examiner also cited Chase as showing that one of ordinary skill in the art would have known that a printer includes a raster image processor to rasterize files from one data type to another (Ans. 11).

to cause a pixel of one scan line of a raster to be imaged using a pixel of another scan line of the raster (App. Br. 19-20; Reply Br. 16).

ISSUES

Did the Examiner err in finding Appellant's Specification does not satisfy the written description requirement of 35 U.S.C. § 112, first paragraph?

Did the Examiner err in finding Ishigami teaches or suggests Appellant's claimed invention?

FINDINGS OF FACT

1. Ishigami teaches a storage unit 8 holds uniform velocity correction data that corrects distortion during expansion or contraction of the electrostatic latent image in the main scanning direction due to a characteristic of the optical system 3 (col. 4, ll. 52-55; Fig. 1).

2. An image clock generating unit 9 generates a chain of clock pulses for creating image signals having a period corresponding to the uniform velocity correction data (col. 4, ll. 57-63; Fig. 1). An image signal creating unit 7 creates the image signal according to the image clock pulses from the image clock generating unit (col. 4, ll. 63-65; Fig. 1). It then transmits the image signal to a laser light source 5 to create a latent image (col. 4, ll. 48-51, 32-39; Fig. 1). The latent image is used for forming a color image using toner (col. 1, ll. 5-11). As a result of the varied clock pulses, a printed character is prevented from being distorted (col. 7, ll. 10-12).

3. Chase discloses that images are rasterized by being converted to a bitmap (col. 7, l. 59). A bitmap is a digitized collection of binary pixel

information that gives an output device such as printer 340 the ability to image data to paper (col. 7, ll. 59-62; Fig. 2). Printer 340 includes an onboard raster image processor (RIP) for rasterizing files (col. 7, l. 57-58; Fig. 2).

PRINCIPLES OF LAW

To satisfy the written description requirement, the disclosure must convey with reasonable clarity to skilled artisans that Appellants were in possession of the claimed invention as of the filing date. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991).

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988).

ANALYSIS

Rejection of claims under 35 U.S.C. § 112, first paragraph

Claim 32

Appellant contends claim 32 is supported by paragraphs 0037 and 0040 of the Specification.[2] These paragraphs teach modifying image data,

[2] Appellant erroneously argued claim 31 instead of claim 32 on pages 21-22 of the Appeal Brief, but corrected this error on pages 18-19 of the Reply Brief.

which causes different pixels of a raster to be imaged as compared with initial image data. For example, pixel 8 or pixel 12 of a circle is imaged instead of pixel 10 of the initial image data to correct for error caused by the scan lens. (Reply Br. 18) Thus, the Specification supports the limitations recited in claim 32.

Claims 34 and 38

Appellant contends claims 34 and 38 are supported by paragraph 0044 of the Specification. This paragraph expressly teaches modified image data may be outputted to a light source at a constant rate as claimed. (Appeal Br. 23, 25; Reply Br. 19, 23) Thus, the Specification supports the limitations recited in claims 34 and 38.

Claim 35

Appellant contends claim 35 is supported by paragraph 0037 of the Specification. This paragraph teaches the raster image processor may calculate an intersection of individual scan lines with graphical objects to determine which pixels turn off and on in individual scan lines. Appellant further contends that because paragraphs 0040 and 0043 of the Specification teach pixels of a circle are moved to compensate for errors in the optical system, these teachings support the limitation of modified image data causing a pixel of one scan line to be imaged using a pixel of another scan line. (App. Br. 23-24; Reply Br. 20)

Thus, paragraphs 0037, 0040, and 0043 of the Specification teach replacement of pixels in a circle across multiple scan lines to compensate for errors in the optical system, as recited by claim 35. Therefore, the Specification supports the limitations recited in claim 35.

Claim 36

Appellant contends claim 36 is supported by paragraphs 0039 and 0040 of the Specification. Paragraph 0039 teaches a raster image processor configured to modify initial image data using correction data. Appellant also contends paragraph 0040 teaches applying a correction warp to graphical objects, which may be rasterized. (App. Br. 24) Thus, because the Specification teaches modifying the image data with correction data results in a different image as required by claim 36, the Specification supports the limitations recited in claim 36.

Claim 37

Appellant contends claim 37 is supported by paragraph 0040 of the Specification, which teaches the axis of a graphical object in the scan direction may increase or decrease to cancel optical distortion causing different pixels to be imaged compared with the initial data image, thus compensating for optical distortion. (Appeal Br. 25; Reply Br. 22) Thus, the Specification supports the limitations recited in claim 37.

Rejection of claims under 35 U.S.C. § 102(b)

Claims 1, 3-5, 7, and 31-33

Appellant contends the features in claims 1, 3-5, 7, and 31-33 are not taught by Ishigami (App. Br. 4-6; Reply Br. 1-4). With respect to claim 1, Appellant asserts Ishigami does not teach modifying image data using correction data (App. Br. 4-6; Reply Br. 1-4). Appellant further asserts Ishigami uses uniform velocity correction data to modify clock signals, not image data (App. Br. 5; Ishigami, col. 4, ll. 52-67; Reply Br. 2-3).

Ishigami teaches an image signal creating unit contains an image clock generator that uses the uniform velocity correction data for generating a chain of clock pulses (FF 1). The chain of clock pulses is used with image data to correct distortion expansion or contraction of the latent image in the main scanning direction (FF 2). Thus, Ishigami modifies image data with correction data via a chain of clock pulses. This modification is the same as using a clock pulse to (subsequently) generate modified image data as recited in claim 1 (Ans. 5, 16-17). Further, because claim 1 does not preclude intervening steps, and Ishigami ultimately uses uniform velocity correction data to modify the application of the image data as claimed, the elements of claim 1, and claims 3-5 and 7, which have not been separately argued, are taught by Ishigami.

With respect to claim 31, Appellant argues Ishigami does not modify content of a representation of a hard image (App. Br. 16-17; Reply Br. 12-13). However, as discussed above, Ishigami does modify image data. Furthermore, Ishigami teaches a printer that prints four color images onto a transfer paper sheet to create a "hard image" (FF 2), thus, modifying image data and printing the image data as a hard image. Therefore, Appellant has not shown the Examiner erred in finding Ishigami teaches the features of claim 31.

With respect to claims 32 and 33, Appellant argues Ishigami does not teach rasterizing different pixels to be imaged and modifying a graphical object, respectively (App. Br. 17; Reply Br. 13-14). The Examiner correctly finds Ishigami teaches modifying image data to correct for distortion, which causes different pixels of a raster to be imaged compared with the initial image (Ans. 35-36). Thus, for these reasons and those set forth above with

respect to claim 1, Ishigami teaches the limitations recited in claims 32 and 33.

Claims 13, 16, and 37

Appellant contends the features claims 13, 16, and 37 are not taught by Ishigami. Appellant addresses this rejection with respect to claim 13 and asserts Ishigami does not teach processing circuitry configured to access image data and correction data (App. Br. 6-7; Reply Br. 4-6).

As discussed above with respect to claim 1, Ishigami teaches using uniform velocity correction data to generate a chain of clock pulses for modifying the application of the image data. The processing circuitry in Ishigami accesses correction data in a storage unit to correct the application of image data received by the image signal creating unit. (FF 1, 2) Thus, Ishigami teaches the claimed processing circuitry configured to access image data and correction data. Therefore, Ishigami teaches the limitation recited in claim 13, as well as claims 16 and 37, which depend therefrom.

Claims 18, 19, 23, 27, and 28

Appellant contends the features of claims 18, 19, 23, 27, and 28 are not taught by Ishigami (App. Br. 8-10; Reply Br. 6-8). Appellant addresses this rejection with respect to claim 18 and asserts substantially the same arguments as those asserted with respect to claims 1 and 13. Appellant further contends Ishigami does not teach processing circuitry for modifying the image data to reduce the presence of image errors caused by scanning errors (App. Br. 8-9; Reply Br. 6-7).

As found by the Examiner, the image clock generating unit 9 in Figure 1 of Ishigami teaches the recited processing circuitry (Ans. 23; FF 1, 2). Further, by correcting distortion, Ishigami reduces the presence of image

errors caused by scanning errors (col. 4, ll. 53-56). Ishigami therefore teaches the required processing circuitry for modifying image data to correct image errors caused by scanning errors recited in claim 18, and thus claims 19, 23, 27, and 28, which depend therefrom.

Rejection of Claims under 35 U.S.C. § 103(a)

Claims 2, 15, 22, and 36

Appellant contends that claims 2, 15, 22, and 36 are not taught or suggested by Ishigami (App. Br. 10-12, 15-16, 21; Reply Br. 8-10, 12, 16-17). With respect to claim 2, Appellant contends Ishigami does not modify the image data being rasterized during rasterization (App. Br. 10-12; Reply Br. 8-10).

The Examiner finds that Ishigami discloses scanning data in a main direction (Ans. 11). The Examiner also acknowledges Ishigami does not specifically disclose rasterizing the image data, but relies on Chase for showing it was known in the art at the time of Appellant's invention that scanning data in a main scan direction is the same as rasterizing (Ans. 11).

Because Ishigami teaches forming a latent image in the main scanning direction (FF 1), it would be obvious in view of Chase that this is rasterization (FF 3). Appellant asserts substantially the same arguments with regard to claims 15, 22, and 36 (App. Br. 15-16, 21; Reply Br. 12, 16-17). Therefore, the Examiner did not err in rejecting claims 2, 15, 22, and 36 over Ishigami.

Claims 6, 14, 21, and 30

With respect to claims 6, 14, and 30, Appellant asserts Ishigami does not modify image data using a raster image processor (App. Br. 13-14; Reply Br. 10-11).

As discussed above, Ishigami teaches rasterizing image data. As argued by the Examiner (Ans. 30), because rasterizing requires a raterizing processor, Ishigami would necessarily include a raster image processor. Claim 21 includes substantially the same raster image processor limitation recited in claims 6, 14, 30, and Appellant asserts substantially the same arguments with respect to these claims (App. Br. 14-15; Reply Br. 11-12). Thus, for the above reasons, the Examiner did not err in rejecting claims 6, 14, 21, and 30 over Ishigami.

Claims 34 and 38

Claims 34 and 38 require data be output or applied "at a constant rate." Appellant contends Ishigami varies the clocking rate of the data to provide correction (App. Br. 18-19; Reply Br. 15). The Examiner acknowledges that Ishigami does not specifically disclose outputting data at a constant rate, but finds one of ordinary skill in the art would have known to include such a feature to output data at an undistorted uniform velocity because Ishigami corrects for uniform velocity (Ans. 12-14).

However, Ishigami teaches modifying clock signals to vary clocking of the image data to correct for distortion, therefore the data is not output or applied at a constant rate as recited in claims 34 and 38. Thus, the Examiner has failed to establish claims 34 and 38 are obvious over Ishigami.

Claim 35

Claim 35 requires outputting or applying data as "a pixel of one scan line of a raster to be imaged using a pixel of another scan line." Appellant contends Ishigami does not disclose this feature (App. Br. 19-20; Reply Br. 16). The Examiner acknowledges that Ishigami does not specifically disclose this feature, but finds one of ordinary skill would have known and used such a feature because pixels are the same in different scan lines for typical objects (Ans. 13).

The Examiner, however, has not identified any teaching in the prior art showing a pixel of one scan line of a raster being imaged using a pixel of another scan line. Thus, the Examiner erred in rejecting claim 35 over Ishigami.

Claims 17, 20, and 29

The Examiner rejected claims 17, 20, and 29 under 35 U.S.C. § 103(a) over Ishigami and Theodoracatos (Ans. 14). Appellant does not challenge the Examiner's findings regarding Theodoracatos, but instead argues claims 17, 20, and 29 are allowable for that same reasons as those presented for claims 13, 18, and 27, respectively (App. Br. 7, 9-10; Reply Br. 8). Therefore, for the same reasons set forth above, the Examiner did not err in rejecting claims 17, 20, and 29 over Ishigami and Theodoracatos.

CONCLUSION

The Specification satisfies the written description requirement of 35 U.S.C. § 112, first paragraph.

The Examiner did not err in finding Ishigami teaches or suggests the features recited in claims 1-7, 13-23, and 27-38.

The Examiner did err in finding Ishigami suggests the features recited in claims 34, 35, and 38.

DECISION

The Examiner's decision rejecting claims 32 and 34-38 under 35 U.S.C. §112 is reversed.

The Examiner's decision rejecting claims 1, 3-5, 7, 13, 16, 18, 19, 23, 27, 28, 31-33, and 37 under 35 U.S.C. § 102(b) is affirmed.

The Examiner's decision rejecting claims 2, 6, 14, 15, 21, 22, 30, and 36, under 35 U.S.C. § 103(a) is affirmed.

The Examiner's decision rejecting claims 34, 35 and 38, under 35 U.S.C. § 103(a) is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

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